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Editorial

THE NEED FOR MORE FACILITIES FOR VETERINARY RESEARCH.

THE losses amongst animals from preventible diseases run into hundreds of thousands of pounds annually, and it is astonishing that the economic side of this question has not been taken up more seriously as a Government matter and one of national importance to the welfare of the country. Other countries of Europe, and indeed of every part of the World, set aside annually very large sums of money for research into the diseases of animals, and it is amazing that England, the country where we pretend that we are ahead in all animal matters, lags so far behind. The Veterinary and Agricultural Press have been complaining for years of the want of help in this direction, and lately the Lay Press has also added its voice to the question. One scarcely picks up a Daily Paper nowadays without seeing some reference to animal losses; such, for example, as the following, which is taken from the Agricultural column of the *Leeds Mercury* under the heading "Animal Disease Losses. How Research may help":—

"At last we are coming to hear on every hand of the growing need for veterinary work and research to go hand in hand with agriculture in order to deal with some of the many troubles that attack the industry from a hundred different angles.

"Last year's prevalence of swine fever inspired vigorous demands for research into this ill-understood and disaster-mongering complaint. Influential men in the industry express from time to time the urgent need of a better understanding of the diseases of farm animals.

"In short, there is a general appreciation that some two, or perhaps three, million pounds a year must be lost to the industry through disease.

"It has been calculated that something like £900,000 in dairy cattle are lost through tuberculosis alone, and without touching on the multifarious sheep or pig diseases, the annual losses through foot-and-mouth disease and Johne's disease are tremendous. Johne's disease is a positive scourge, and it is on the increase."

Also, from a paragraph in the *Times*, written by the Agricultural Correspondent, one quotes the following:— *

"VETERINARY RESEARCH AND TEACHING.

"Reference has been made before in these columns to the urgent need for improved facilities for veterinary research and teaching. The

* The italics are ours (*Editor*, VETERINARY JOURNAL).

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Royal Veterinary College at Camden Town is falling into a state of dilapidation, while the stockowners of the country are calling loudly for more qualified veterinary surgeons, combined with such wider and deeper researches into the numerous diseases that afflict their animals as would improve the position both as to preventive and curative methods of treatment. *The present condition is not only anomalous, but its continuance cuts at the very root of all schemes designed for raising the standard quality of our live stock.* Sir Arthur Hazelrigg put the case for greater and immediate attention to this matter very forcibly at the meeting of the Council of Agriculture on Thursday, and it is to be hoped in the best interests of the farming industry, that the subject will have the practical, as it, of course, has, the sympathetic, support of the Government. *Sir Arthur was fully entitled to suggest, as he did suggest, that veterinary research and the suitable training of veterinary surgeons were of more urgent importance than the appointment of additional county organizers.* As the need for more organizers appears to have arisen it may well be supplied, but it is right to view these questions in a correct perspective, and if this procedure be observed there can be no doubt as to the prior claims of the health of our herds, flocks, and studs. *The one subject is basic and the other largely administrative.* In the absence of sound understanding of diseases and even of minor ailments, the value of the class of work undertaken by organizers is likely to be heavily discounted."

Again, to quote from a recent issue of *The Field*, one reads :—

"ANIMAL DISEASES RESEARCH.

"It is welcome news that the Minister of Agriculture is considering a scheme for the development of research into animal diseases and their prevention. This is a field in which the scientist has not yet been of great assistance to the farmer. The losses from disease would be appalling if a total figure could be arrived at, though this country is probably among the healthiest in the world for all livestock, from its geographical position. Swine fever, sheep scab, and foot-and-mouth disease, present difficult problems to research workers, *but it is to be hoped that the Minister will carry good intentions into effect and give proper financial aid for the more active prosecution of research into these and other diseases which exact a heavy toll from the stock farmers of this country.*"

Unfortunately the above is all too true but it is not the fault of the profession. It is the lack of opportunity. If decently remunerated positions were available the men could be found—but in many instances the salary offered is little better than what is paid to a chauffeur, and the consequence is that the young graduate, who has need to earn money and assume the responsibilities of life, goes into practice because he has no alternative.

General Articles

CANINE HYSTERIA: AN INTERESTING THEORY.

By R. C. G. HANCOCK, B.Sc., M.R.C.V.S.,
Beaconsfield.

THE following notes on Canine Hysteria may be provocative of discussion on certain problems of the disease, to the solution of which the writer contributes information from a rather unusual source. It is not proposed to deal at length with symptoms or differential diagnosis, but rather deal with the origin of the infection, the prevention of its occurrence, and the treatment of the disease once established.

My first acquaintance with hysteria was in December, 1926. The outbreak occurred in a small kennel of Airedales kept by a lady and her daughter. Captain Sewell, who was consulted at the time, informed me it was the first outbreak he had encountered south of Manchester. I gathered that he and several other practitioners who had encountered the disease in Ireland and the north of England were strongly of opinion that dog biscuit was the source of the infection. On the strength of this, no biscuit was used in this kennel from that time. The hysteria soon passed off. In May, 1927, the owner of the kennel rang me up and said several of her dogs had hysteria again. It transpired that the day previous, in spring-cleaning the food shed, she had come across a small bag of biscuit, left over from the pre-hysteria days. Rather than waste it, it was mixed up with the feed given the following morning. Five or six animals went down with hysteria within two or three hours. This seemed very strong evidence that biscuit could carry and hold the infection for a period of at least five months. At any rate, from that time I invariably told my clients to cut out biscuit and have had no trouble with recurrence of attacks, except where after a lapse of time my advice has not been followed. In fact my originally afflicted kennel had an outbreak last autumn, and I found biscuit had again been started. Further evidence could be adduced to show that dog biscuits play some part in the cycle of events leading to hysteria. A client together with two other breeders bought up a ton and a half of biscuit at a cheap rate, left over from a dog show. Each took half a ton. My client had hysteria throughout his kennels shortly after. He happened to mention this over the telephone to one of the others who shared the purchase, and learned that he too had got the disease in his dogs. They rang up the third breeder, and found that he was in like plight. These

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three men are, it need hardly be said, strong supporters of the biscuit theory.

It was not until the early summer of 1929 that any material came to light that could help the writer to understand better the mysteries of hysteria. He then had the opportunity at a friend's house of talking to a very remarkable individual with the gift of super-physical vision, in short, a seer. It is not proposed to enter into discussion as to the nature and merit or otherwise of clairvoyance ; it is for the reader to take the following account, if he wishes, as a working hypothesis, and for those who have the information at their disposal, to fill in the missing links of physical fact, or replace the hypothesis by a better one. The seer in question had been consulted about an outbreak of hysteria in some kennels. Now, in looking at an organ or body that is diseased, a seer can see certain alterations in the luminosity or aura thrown out by the organ or body. In the case of dogs that had had hysterical attacks no departure from the usual could be seen. But during an attack he found a luminous area in the forehead, in about the position of the frontal sinus. There is a theoretical interest in this for the physician as will be seen later. More than this, I was told that he was informed from other-plane sources that the disease was no new disease, and that in parts of China it had occurred for thousands of years, and that it was due to the presence of a certain pollen obtaining entry into the animal's body. Further, he said that provided the animal was kept on a milk and water diet for twenty-four hours after an attack, no permanent damage to the nervous system could occur, however often attacks might recur in the future. Another point mentioned was that frost rapidly destroys the virus.

Perhaps in anticipation the writer might here interpolate that he has the strongest personal belief in the powers of this particular seer as regards diagnosis. Not only could he, if necessary, produce physical evidence with regard to his own patients, but there are a very large number of medical men who have had unquestioned proof of the unfailing accuracy of his vision as used in diagnosis. For the moment, therefore, assuming these statements to be accurate, what do they postulate, taken in conjunction with what is already known to the practitioner ?

Starting from China, let us export grain to England. Some of this grain contains the hysteria-causing pollen. During its passage to England in ships' holds, an infected batch can largely extend its boundaries. It arrives in England, and eventually reaches the biscuit factories. From here it undergoes distribution to many areas, in many different forms and shapes, for ultimate consumption by the dog. I

know of no facts in the incidence of hysteria that do not fit in with the above hypothesis. I do not, on the other hand, know any other hypothesis that can be made to fit in so well with the observed facts. What remains to be demonstrated is whether Chinese grain is, in fact, being imported and used in the manufacture of dog biscuit. If so, I shall rejoice to be able to purchase biscuit for my own kennels that comes from a freshly sterilised factory that has eliminated this source of grain supply. Another piece of work is the demonstration of the pollen implicated, and its botanical source. The relation of hysteria to the asthmas is another interesting point arising out of what has been said. Still holding to our hypothesis, what does it bring to the practitioner? The writer has had great success with hysteria since he dealt with it on the lines outlined below. Directly an attack occurs, dose the patient and those dogs on biscuit diet associated with him with a sharp dose of arecolin hydrobromide in water. Disinfect kennels and biscuit sacks, and destroy biscuit by burning. Keep affected animals on milk and water in equal parts for twenty-four hours. Sedative drugs to be employed at discretion. Parke Davis issue a capsule " Chloretone and Belladonna Compound " that is excellent for this purpose. It contains Chloretone 1½ grs., Potass. Bromide 2½ grs., Extract Belladonna ½ gr. The dose for a 20 lb. terrier is 1 capsule three times daily. Where multiple outbreaks occur in a neighbourhood, it can often be observed that one store or shop is the radiating centre of the disease regarded from the biscuit point of view. When the particular batch of biscuit is sold out, the outbreaks will cease, unless the unfortunate dealer is the subject of a fresh visitation from the new consignment. To store new biscuits in old sacks is sufficient to infect uncontaminated biscuit. A recipe for home-made dog biscuit is as follows: 1 lb. wholemeal flour, 2 ozs. fresh dripping; milk, water, or milk and water to mix. Rub the dripping into the flour, warming the dripping slightly if hard. Mix the liquid into a stiff dough, form into biscuits of a convenient shape—an indented sausage-shaped loaf is useful. Bake in a moderate oven; leave in the oven till it cools, to dry and harden the biscuit. Keep in an airtight tin. No attack of hysteria has ever occurred where this biscuit has been used. The fact mentioned by the seer, that frost destroys the activity of the virus in the pollen, is not a point that I had previously thought of, but in two outbreaks I have since noted a cessation of attacks following on one or two frosty nights. It also suggests a possible line of attack in dealing with infected biscuit by some freezing process.

In conclusion, the author wishes to reiterate that he would wish what he has written to be regarded as an endeavour to provide his fellow practitioners with a working hypothesis. It contains observed facts linked

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with what many will regard as preposterous assumptions. The point is, it works ; and no hypothesis ought to be expected to do more.

Note. This article was submitted to the seer above mentioned, for permission to publish, and I feel this quotation from his letter to me is of great importance. He says : " We also ascertained that the infection—once introduced—can be carried by the excrement from dogs suffering, and so such excrement should immediately be burnt, for other dogs treading in it can spread the infection."

IMMUNISATION OF FOWLS AGAINST TUBERCULOSIS WITH B.C.G. VACCINE.

By T. M. DOYLE, F.R.C.V.S.,
Veterinary Laboratory, Ministry of Agriculture.

AVIAN tuberculosis is widespread on general farms in this country and frequently causes heavy loss, but it is of relatively small importance on specialised poultry farms.

This is explained by the slowly progressive nature of the disease, as a result of which it rarely causes serious mortality amongst fowls under two years of age, and only exceptionally good birds are retained after the second year on specialised poultry farms. Whereas on general farms until recent times the possibilities of poultry as a side-line were ignored, and stock was frequently retained long after it had ceased to be profitable. In such circumstances tuberculosis exacted a heavy annual toll from the older birds.

The principal object of the experiments here described was to test the value of the B.C.G. vaccine for the immunisation of fowls against avian tubercle bacilli.

In view of the excellent results reported from the employment of this vaccine in the immunisation of children against tuberculosis, and the encouraging results with bovines, the possibility of it protecting fowls appeared to be of sufficient practical importance to merit investigation.

As the strain of tubercle bacillus contained in the vaccine is of bovine origin, it was hoped that the experiments would produce some further information on the immunological relationship between bovine and avian types of tubercle bacilli.

M'Fadyean, Sheather, Edwards, and Minett (1) have tested the value of intravenous inoculations of avian tubercle bacilli in immunising cattle against those of bovine origin. They concluded that

> " By the intravenous inoculations of avian tubercle bacilli it is possible to confer on healthy calves a marked increased power of resistance to infection with bacilli of the bovine type."

Herricourt and Richet (2), Grancher and Martin (3), and Paterson (4) have recorded the results of experiments on dogs and rabbits inoculated with avian tubercle bacilli as a means of protection against subsequent infection with tubercle bacilli of human origin. As the work of these investigators is fully reviewed by M'Fadyean and his collaborators it is unnecessary to deal with it here.

The experiments carried out by these various workers were different from these here described, in as much as their vaccinating material contained virulent bacilli, whereas there is almost general agreement that the B.C.G. vaccine is avirulent.

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Plan of Experiments.

Six groups of twenty-five fowls each were inoculated with varying doses of B.C.G. vaccine at intervals of one month (see Table I). These fowls were about one year of age.

The vaccine used was similar to that employed for the inoculation of bovines, except that it contained only 2 mgrs. of dried bacilli per c.c of liquid (Sauton medium diluted to one-quarter) instead of 5 mgrs. as in the bovine vaccine. Freshly prepared vaccine was used for each group of fowls.

One month after inoculation of the last group eight birds were removed from each group and put in-contact with tuberculous fowls in an infected paddock to test their immunity against natural infection. The remaining seventeen fowls of each group were tested against an intravenous inoculation of virulent avian tubercle bacilli; eight received 0.1 mgr., and nine 0.01 mgr.

Table I shows the details of inoculation of a group; it is unnecessary to give the table for each group as all were similar.

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Table I.

No. of bird	Route of inoculation	Dose of dried bacilli	Volume of fluid injected	Immunity tested by intravenous inoculation of avian tubercle bacilli
1882	Subcut	1 mgr.	0.5 cc.	*
1853	,,	,,	,,	0.1 mgr.
1862	,,	,,	,,	0.01 mgr.
1877	Intravenously	,,	,,	*
1857	,,	,,	,,	0.01 mgr.
1859	Subcut	2 mgrs.	1 cc.	*
1886	,,	,,	,,	0.1 mgr.
1871	,,	,,	,,	0.01 mgr.
1855	Intravenously	,,	,,	*
1872	,,	,,	,,	0.1 mgr.
1836	Subcut	4 mgrs.	2 cc.	*
1883	,,	,,	,,	0.1 mgr.
1869	,,	,,	,,	0.01 mgr.
1884	Intravenously	,,	,,	*
1926	,,	,,	,,	0.01 mgr.
1928	Subcut	6 mgrs.	3 cc.	0.1 mgr.
1881	,,	,,	,,	*
1870	,,	,,	,,	0.1 mgr.
1856	,,	,,	,,	0.01 mgr.
1929	,,	,,	,,	0.01 mgr.
1850	,,	8 mgrs.	,,	0.1 mgr.
1868	,,	,,	,,	*
1934	,,	,,	,,	0.1 mgr.
1854	,,	,,	,,	0.01 mgr.
1867	,,	,,	,,	0.01 mgr.

* Immunity tested in paddock against natural infection.

Test of Immunity of Vaccinated Birds Against Artificial Infection.

The strain of tubercle bacillus originally selected for this test was isolated from a duck which showed advanced lesions of the disease in the liver and spleen. Tuberculosis of water-birds living under natural conditions is rare, and this was the only case met with at the laboratory during the past five years.

Preliminary titration of the duck strain gave such erratic results that it was discarded in favour of a strain recently isolated from a fowl.

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Titration of the fowl strain showed the intravenous inoculation of 0.1 mgr. of culture killed adult fowls in 43.5 days, and 0.01 mgr. killed adult fowls in 60.4 days.

Table II.

Interval after inoculation at which birds were tested.	Number of days vaccinated fowls survived an intravenous injection of virulent avian tubercle bacilli.	
	0.1 mgr.	0.01 mgr.
One month	49	46
Two months	57	58
Three months	44	50
Four months	51	52
Five months	43	55
Six months	49	53

It is evident from these results that B.C.G. vaccine conferred no protection against a subsequent inoculation of virulent avian tubercle bacilli.

Test of Immunity of the Vaccinated Birds Against Natural Infection.

This test was carried out in a small grass paddock 60 x 40 feet in area. The birds were housed in a portable wooden house, the windows and door of which were kept open throughout the experiment. In order that the test should be severe, and to reproduce as far as practicable the insanitary conditions frequently obtaining on farms, neither paddock nor house was cleaned out during the experiment and eventually got into a very filthy condition such as is generally regarded as conducive to the propagation of contagious disease.

In view of the rigorous conditions under which the birds were kept, they were given a very liberal diet.

During the six weeks preceding the test, fourteen fowls died of tuberculosis in the paddock; six of these were naturally, and eight artificially, infected.

Forty-eight vaccinated fowls and forty healthy controls were placed in the paddock thirty days after the inoculation of the last group.

The controls had previously been subjected to an intra-dermic tuberculin test and had given negative reactions. The immunity test was continued for nine months, and during that period seventy-eight fowls, sixteen naturally infected and sixty-two artificially infected with tuberculosis were introduced into the paddock. These birds were infected with strains of tubercle bacilli obtained from five different outbreaks. In spite of the severe conditions under which the birds were maintained, and the gross tuberculous infection present in the paddock, all were, apparently, in good health when the experiment was discontinued at the end of the ninth month.

On the conclusion of the test the control birds were again subjected to an intradermic tuberculin test and five (12.8 per cent.) only gave a positive reaction.

The results of the tuberculin test and *post-mortem* examination of the reactors, which were carried out by Mr. N. S. Barron, M.R.C.V.S., are shown in Table III.

The forty-eight vaccinated birds were all in fair condition when killed at the conclusion of the experiment, and none showed on *post-mortem* examination any macroscopic lesions of tuberculosis.

The failure of this experiment as a test of the immunity of the vaccinated birds against natural infection was a surprise, as at one period it was thought that the conditions were being made too severe. The resistance to infection of eighty-seven per cent. of the control fowls may have been contributed to by the open-air conditions under which they were kept, and the very liberal diet.

It would appear advisable, when testing the immunity of vaccinated fowls against natural infection with tuberculosis, to carry out the tests in a confined space, in order that the chances of infection may be increased. Furthermore, in view of the slow evolution of the disease in fowls, a period of nine months would appear to be insufficient for the duration of such tests.

Shortly after the conclusion of this work Harnach (5) published the results of immunisation experiment on fowls, using a B.C.G. vaccine of avian origin.

The strain employed had undergone one-hundred-and-seventy subcultures on potato soaked in ox-bile, but the experiments described fail to prove that it had as yet become completely innocuous. On this account, and because of the small number of birds employed, no definite conclusion can be drawn from these experiments as to the immunising value of an avian strain of tubercle bacillus attenuated by the Calmette-Guérin method. But, in the absence of any other vaccine for the pro-

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Table III.

Number of fowls tested, 39 ; Number of reactors, 5.

Breed and Number	Reaction 24th hour	Reaction 48th hour	*Post-mortem* examination	Bacteriological examination	Result
W/L 2611	Hot swollen wattle	Considerable increase in swelling	Three tubercles liver, and one in spleen	Positive	Positive
W/L 2633	Hot swollen wattle	No change.	No lesions	Negative	Doubtful
R.I.R.	Wattle swollen	No change	Tubercles in liver and speen	None made	Positive
W/L 2629	Wattle swollen and œdematous	Swelling increased	No lesions	Negative	Negative
W/L 2505	Slight swelling of wattle	Swelling increased	Tubercle in liver ; spleen enlarged	Positive	Positive
B/L 2619	Wattle swollen and œdematous	Swelling decreased	Tubercles in liver	Positive	Positive
W/L 2626	Wattle swollen and œdematous	No change	Tubercles in liver and spleen	Positive	Positive

tection of fowls against tuberculosis, it is obviously a method which should be thoroughly tested.

Conclusions.

The B.C.G. vaccine (bovine strain) does not protect fowls against a subsequent intravenous inoculation of virulent avian tubercle bacilli.

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(3) Grancher and Martin. *Rev. de la Tuberculose*, 1, 1893 ; p. 289.
(4) Paterson. *Lancet*, 1897 ; p. 1,106.
5) Harnach. *Rev. Gen. Med. Vet.* 37, 435, 1928 ; p. 129.

Clinical Articles

A Case of Puerperal Septicæmia in a Mare.

By ARTHUR PAYNE, F.R.C.V.S.,
Weybridge.

THE patient, a Suffolk mare, four years old, gave premature birth at 7th month, to dead twin fœtuses. The latter exhibited petechæ over various parts of body and certain areas showed a bruised appearance. The placentæ were retained and were evacuated by manipulation twelve hours later, and a pessary of acriflavine introduced into the uterus.

The following day a catarrhal discharge was escaping from the vagina and in 48 hours a puerperal septicæmia developed with temperature 106, and rapid pulse, great depression, respiration greatly accelerated and shallow. The train of symptoms are so familiar that I will not recapitulate them.

Orthodox treatment was adopted, viz. febriguges, internal antiseptics, uterine douches, etc. etc., without response.

As the result of a conversation over the 'phone with Messrs. Bayer, they despatched by passenger train a streptococcal serum. Three subcutaneous injections were given of 50 c.c. each every 12 hours. This treatment was followed by a steady and marked improvement.

The mare made a complete recovery within a week, with no attendant unfavourable sequelæ.

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A Case of Tuberculosis of the Spleen.

By G. MAYALL, M.R.C.V.S.,
Bolton.

A ROAN cob, 6 years old, that had been off work for 4 days a year previously with a cough and rise of temperature, was again put on the sick list. On examination pulse was 40 ; temperature 103°, and respirations 20.

Notwithstanding full doses of febrifuge medicine regularly given no impression was made on any of the above figures. The pulse was weak but regular, and indicative of an obstructed flow of blood going through the heart. *The mucous membranes of the eyes and lips were pallid.* Rectal examination led to the belief that some lumps could be felt on the spleen, but these did not appear pronounced enough to swear to. The cob did not lose condition, ate and drank normally, but at times seemed sleepy and listless.

As he made no progress at the end of six weeks he was destroyed. A diagnosis was given of heart disease, lung trouble and impairment of proper blood supply.

On *post-mortem* there was tuberculosis of the spleen with 10 nodules from the size of a duck to pigeon's egg in the spleen, only about one-eighth of the tissue being normal. The liver was gritty on section and an *ante-mortem* clot of blood in the heart weighed 3 ounces. *The blanched appearance of the mucous membranes* together with a suspicion of nodules in the spleen should have, perhaps, led to a more correct diagnosis, but I did not consider it wise to be dogmatic about the spleen nodules.

Malkmus, in his " Clinical Diagnostics," says : " On suspicion of tuberculosis in the horse, palpation of the spleen (the hinder edge of which can be felt posterior to the last rib on the left abdominal wall) when the stomach is fairly empty, should not be overlooked." In the *Veterinary Record* for November 23rd, 1929, that observant clinician, Mr. F. T. Harvey, F.R.C.V.S., of St. Columb, in a very valuable article on " Aspects of the Spleen," calls attention to the diagnosis by palpation of new growths in the spleen. I think, in addition, perhaps *the pallidness of mucous membranes* should help to fortify us in our opinion.

A Further Note upon Ulcerative Cellulitis.

By MAJOR T. A. B. COCKSEDGE, M.R.C.V.S.,
Chief Veterinary Officer, British Somaliland.

FOLLOWING upon my previous notes on Ulcerative Cellulitis it may interest your readers to know that on returning from leave after five months, I found all the cases I had left having the sea-water treatment

completely cured, one case especially I was amazed at, as I left the animal affected in all four legs, and on my return I find the animal completely recovered, perfectly fine and clean about his legs, and showing very little in the way of scars.

As there is a fair amount of this disease in the country, especially among the native-owned animals, I am going to make a quarantine for the disease at the sea-side, where they will have regular and proper salt-water baths.

A point that has rather struck me, is that considering that most natives here have large flocks of sheep, and that all animals are grazed and kraaled together, I have never yet, in five years, seen a case of " Caseous Lymphadenitis " amongst the sheep. Possibly I have been unobservant, but I am going to try and inspect the slaughter-houses rather more thoroughly.

The Use of Calcium Gluconate in Milk Fever.

By ARTHUR PAYNE, F.R.C.V.S.,
Weybridge.

An aged Jersey cow calved on February 14th, showing symptoms of milk fever in the evening. The owner inflated the udder, but as she was semi-comatose the following morning, we were requested to attend.

By the time of our arrival she was quite comatose, and we lost no time in inflating the udder with air to a good high pressure.

She was seen again at 1 p.m., and found in precisely the same condition. Apparently no response to the inflation. During the morning I had 'phoned to the Sandon Chemical Works and they very kindly and promptly sent by passenger train a supply of calcium gluconate. Of this 125 c.c. was injected subcutaneously. Within 30 minutes the cow stood up, and the owner 'phoned that she was doing well.

The following morning a relapse occurred, and so another 125 c.c. calcium gluconate was administered as before. This was followed by a marked improvement within an hour, and by the evening she was eating, ruminating and practically normal.

I have ascertained since that 300 c.c. should be administered at one dose.

Dislocation of the Hip Joint in the Dog.

By PROFESSOR J. McCUNN, M.R.C.V.S., M.R.C.S., L.R.C.P.,
Royal Veterinary College.

Dislocation of the hip is a lesion which is becoming increasingly frequent in our canine patients. The incidence of this injury is directly

proportionate to the ever increasing number of mechanically propelled vehicles.

Considerable force is required to dislocate a hip, and in nine cases out of ten a motor car is to blame. Dislocation may be present without any sign of injury to the superficial structures. It may be complicated by fracture, which may involve the upper extremity of the femur or the pelvis in the region of the acetabulum.

The commonest dislocation is one unassociated with fracture and with an intact capsular ligament. Uncomplicated dislocations may be classified into three categories.

(1) Upwards and forwards. The head of the femur lying just in front of the rim of the acetabulum. This is by far the commonest case.

(2) Upwards and backwards. The head of the femur lying just behind the acetabulum.

(3) The ventral. In these cases the head is pushed downwards and inwards, it lies under the rim of the acetabulum and in most cases it is associated with fracture of the acetabulum rim.

It is quite unusual to find a case where the head of the femur is lying directly above the acetabulum.

Diagnosis is in most cases easy.

If seen early the animal will be carrying its leg in an advanced adducted position ; there may be considerable pain on movement and severe pain on pressure over the joint. Severe pain on pressure is very significant of an associated fracture.

The usual case, however, is one in which the injury is several days old. The animal is brought for examination because some injury it has suffered has not completely resolved. There is no observable pain but it cannot use the leg normally. It is carried and may be put down during excitement as when gambolling, but when the period of excitement is over the dog again lifts the limb and shows no desire to bear weight upon it.

Examination will show that the hip is carried on the affected side higher than that of the sound side. When walked he bears towards the sound side. The leg will be carried in the position of slight adduction and with flexion of the hock and stifle joints.

When the limb is used the step is short. The hip may apparently function under passive movement and there is generally no pain on pressure.

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If the case is one of downward dislocation there will be a flattening over the hip and on pressure a pit owing to the defection of the great trochanter. To ascertain if either of the other two dislocations are present, grasp the thighs and raise the hind quarters, with the first fingers ascertain the levels of the iliac crests. These should be normal. With the thumbs feel and ascertain the levels of the tuber ischii.

Now pass the thumbs forward until the great trochanter is reached. It may be obvious that one is much more prominent than the other. A prominent trochanter is very significant.

Now abduct the femurs straight outwards as far as possible, keeping the thumbs over the region of the great trochanter.

On the sound side the prominence will go, the trochanter will as it were flatten. On the dislocated side the trochanter prominence increases especially as compared with its fellow. Following these simple rules one can diagnose with certainty most dislocations.

The prognosis is good if uncomplicated by fracture.

If the head of the femur is replaced it seldom dislocates. I make this statement with all due respect to the prevalent opinions. Up till a year or so ago I thought that no good object was served in attempting to reduce a dislocated hip. It was my opinion that it was better to let the head form a false joint for although the dog had a mechanical limp due to a shortening of the leg, he was quite comfortable and serviceable. This opinion was based on the fact that the dislocated hips I had reduced had always recurred.

By the use of X-rays, however, I discover that in all these cases my reduction had only been apparent. The click felt and heard only signified the movement of the head to another spot on the acetabulum rim; in no case was it in its true position.

Working in conjunction with X-ray, I find that it is quite easy to reduce a hip correctly, and that often the function of the limb returned very quickly.

My procedure is as follows.

Put the animal under an anæsthetic. Next knead the adductor muscles on the inner side of the joint well in order to break down temporarily their resistance. The limb will now move much more freely. Now grasp the affected femur. Extend it; perform the movement of circumduction and it is quite easy to reduce the dislocation.

In the case of the downward dislocation pressure is applied on to the head of the femur from the inner aspect of the thigh.

After treatment *nil* with the exception of massage.

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Inguinal Hernia of the Bladder in the Dog.

By D. E. WILKINSON, M.R.C.V.S.,
Chigwell, Essex.

On December 18th last I was asked to examine a Cairn Terrier, said to have a mammary tumour. The owner, on the advice of her groom and a "doggy" friend, had been applying Iodex daily, with massage, for several weeks, but had become alarmed as the little bitch began to show pain and lameness.

On examination I found some viscus herniated through the right inguinal canal, presenting a tumour as large as a pigeon's egg. Taxis on the enlargement in the dorsal position failed to reduce it, as there was obvious adhesion to the inguinal ring. I expressed the opinion that it was probably either the right horn of the uterus or the bladder, and advised an immediate operation.

On the following day I incised the skin under a general anæsthetic, and found the bladder herniated through the inguinal canal and firmly adherent to the external inguinal ring. The viscus was very full of urine and as gentle pressure upon it failed to express the fluid into the urethra I contemplated puncture to relieve it. Fortunately, whilst manipulating the bladder, I found a small space where adhesion between that organ and the inguinal ring was incomplete. Introducing a blunt thick sound into this I was able to break down the adhesions sufficiently to admit the inserting of a finger and then carefully to break down the adhesions all around the herniated bladder. When thus releasing the organ suddenly emptied itself and slipped back into the abdomen. The external inguinal ring was there sutured with interrupted sutures of plaited silk, the skin wound sutured in a similar manner and an Elizabethan collar applied to prevent licking. Recovery was uneventful and the dog was discharged cured on January 10th.

Some Clinical Notes on the Incidence of Canine Hæmorrhagic Enteritis.

By D. E. WILKINSON, M.R.C.V.S.,
Chigwell.

Those of us who have followed attentively the brilliant research work of Laidlaw and Dunkin are standing a-tiptoe in eager expectation of further revelations as to the nature and characteristics of canine distemper and its kindred and allied diseases, complications and sequelæ.

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Amongst the most disastrous of these may be noted hæmorrhagic enteritis.

The prevalence and fatal character of this disease of recent years, have given rise to curious misconceptions, firstly that it is a " new " disease, secondly that it is essentially or mainly a disease of greyhounds.

That it is no new disease is well known to the older practitioners, indeed this is in all probability the " bloody flux " so often referred to in old writings, whilst most veterinary surgeons in extensive canine practice must have encountered it from time to time in kennels of foxhounds and in many large kennels which were continuously occupied, probably overcrowded, and badly constructed from a sanitary point of view.

Sporadic cases have often been wrongly ascribed to poisoning by arsenic or by putrid meat, both of which causes may give rise to symptoms similar to those exhibited by sufferers from hæmorrhagic enteritis.

Epidemic outbreaks are in many instances diagnosed as enteric distemper.

That it is a frequent complication of distemper is an undoubted fact, as it has been known to recur year after year in the same kennels when successive batches of puppies have fallen sick with that disease, but it has also been known for long to be a separate disease by reason of its attacking dogs naturally immunized against distemper.

This knowledge appears to have substantial confirmation from the fact that it may be, and frequently has been, contracted in a fatal form by dogs successfully immunized against distemper by the Laidlaw-Dunkin process. The recurrence of this disease for three or four years in succession in batches of foxhound puppies in the particular kennel led the writer to suspect the presence of a " carrier " or " carriers " of the disease amongst the older hounds of the pack.

With the sanction and assistance of the Master a number of hounds were segregated and carefully watched. Amongst these was found a five-season hound who suffered from frequent attacks of diarrhœa with occasional slight dysentery.

Rectal swabs from this hound were submitted to a pathologist, who reported that cultivations from this yielded cultures of

(*a*) a small kidney shaped diplococcus of uncertain species ;

(*b*) a short, rather stout bacillus, possibly one of the hæmorrhagic septicæmia group ;

(*c*) bacillus coli.

From this a vaccine was prepared and a series of six injections of it administered to the hound.

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The treatment was followed by a marked improvement in the animal's condition, a cessation of the diarrhœa and dysentery and the absence of the organisms (*a*) and (*b*) in further rectal swabs submitted for examination and by a complete cessation of outbreaks of this affection for four subsequent years.

Some four years later, in October, 1923, a similar outbreak was encountered in a small kennel of greyhounds and a rectal swab submitted from one of the patients produced an almost identical report. From this dog a quantity of killed vaccine was prepared and stored in sealed ampoules for future use.

Good results followed its application and a complete cure followed bi-weekly inoculations for three weeks in a Dalmatian suffering from a sub-acute chronic muco-enteritis. This latter case had given rise to much anxiety as in addition to being a great favourite his owner had a very delicate Pomeranian and both she and her medical adviser feared the dog had tuberculosis.

From the apparent efficacy of this treatment it would appear to be worthy of an extended trial, especially in view of the failure of most medical treatment.

Any treatment of acute cases to be successful must be associated with the best possible nursing. Warm housing and clothing in order to prevent collapse are essential. The writer met with one outbreak in 1921 in which after an extremely severe frosty night five hounds were found dead and lying in pools of blood.

Poison was at first suspected, but a thorough investigation ruled that question out. The whole pack appeared to be infected in a greater or less degree and only by dint of very careful attention were further losses avoided.

This outbreak occurred in a very cold May, with sharp frosts every night, which left the affected hounds prostrate and semi-collapsed in the mornings. Their removal into a large dry stable with a central gangway between the loose boxes in which they were confined, and in which a large coke fire, in a brazier, was kept alight all night was attended by marked and rapid improvement.

Amongst the predisposing causes of this affection cold, especially damp cold, appears to be the most frequent and the practice of swilling down the kennels with disinfectants daily in any but very dry, hot weather, greatly aggravates the trouble.

In very few, except the most modern kennels, is there an artificially heated infirmary or isolation ward, and the exposure of the inmates to damp cold would seem to be one of the causes of so many fatalities amongst greyhounds and sporting dogs.

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House dogs, which lie dry and warm, often survive even an acute attack, indeed one of the most severe attacks from which the writer has seen a patient recover, occurred in an Alsatian sleeping in a kitchen heated by an Ideal boiler. In this case the linoleum on the kitchen floor was found in the morning covered with blood, but the patient survived.

In very acute cases, like the one just mentioned, provided the animal does not collapse in the first few hours, a very speedy recovery is sometimes seen, as if the very severity of the dysentery had ridded the intestines of the causal organism.

Treatment must be based upon the administration of stimulants, astringents and internal antiseptics.

The initial dose of castor oil, often so effective in biliary-diarrhœa, is contra-indicated.

Hypodermic injections of camphorated oil, camphorated normal saline if the loss of blood is heavy, and the internal administration of methyliditanium has given the best results in the writer's experience. Chlorodyne and opiates seem to be followed by a toxic absorption from the deranged bowel and morphia is too depressant.

In cases which presented anasarcous symptoms the intravenous injection of formalin in a camphorated normal saline solution occasionally gave good results. In other instances it was a failure. Intravenous injections of calcium glucoside may be worth a trial, although if the corpuscles are being hæmolysed the addition of " clotters " to the blood would appear to be of doubtful value. In large kennels of valuable dogs however prophylaxis rather than treatment should be aimed at through the detection of possible carriers, good sanitation and housing, generous dietary, and the maintenance of good condition.

The better working condition of the foxhound than that of the average track-racing greyhound would appear to account for the former's greater resistance to infection.

Canine Hysteria in Lunds, 1929: Second Report and a Further Theory as to the Cause.

By R. A. SCOTT MACFIE, M.A., B.Sc.,
Shaws, Lunds, Sedbergh, Yorkshire.

In the first report I described an epidemic—or rather *epicynic*, since it is an insult to confound industrious, affectionate dogs with the cruel demos that misrules us—of canine " hysteria " in the isolated district of Lunds, from its outbreak in the summer of 1929 to the beginning of November. New facts have since been brought to notice

which, being significant, should be recorded for the use of those who are studying the subject.

The capricious incidence of the disease was mentioned, but the implications of this apparent caprice were not stressed. Two of the fell-shepherd's dogs, which lived together, developed " hysteria " in April ; the other two, kept in a different building, did not show symptoms until the end of July. Meanwhile the malady, passing southward over half-a-dozen farms, reached Quarry Farm* on July 19th. Place Farm in the same direction was visited in mid-August, and a farm in Cotterdale over the fell to the east, where the fell-shepherd often calls, on August 25th. High West End, a mile nearer the fell-shepherd's house than Quarry Farm, was the next victim, a dog having an attack there on September 1st. The disease then jumped on October 1st to Yore House, towards the southern boundary of the affected district, and farthest from the fell-shepherd's home, and immediately leapt back on October 2nd to High Hall which, as the most northerly of the Lunds farms, should have been reached first. Finally, on October 31st, it arrived at South Lunds, which is near Quarry Farm. There are two farm-houses very close together at Hanging Lund, in Mallerstang, where the fell-shepherd lives ; at his house there have been five cases of canine " hysteria," at the other house not one. The farmers at Quarry and Place Farms keep three dogs, of which, in each instance, two have had attacks and one has escaped ; inquiry showed that at both farms the two dogs that contracted the disease lived together while the dog that escaped slept in a separate building. The saltatory progress of the malady, resembling rather a Knight's tour of the chess-board than the stately movements of the King, implies that the disease is neither " in the air " nor spread by any omnipresent insect or carrier, and that it is not passed directly from dog to dog. Evidently it is associated in some way with the quarters in which the dogs sleep. It is the habit of Lunds farmers who visit farms other than their own, if they enter the house, to put their dogs in a stable or out-building, and it seems likely that the canine guest sheds on his host's premises something, probably an external parasite, which, if the dog has " hysteria," brings infection to the place.

The visit of an infected dog does not, of course, necessarily cause an outbreak of " hysteria " on a farm. The visitor may not be put in the place where the farmer keeps his own dogs, or may not stay long enough to drop parasites ; and if it does drop parasites in the building where the farmer's dogs sleep, the floor may be swept before the para-

* The relative positions of these farms will be seen more clearly on reference to the six-inch ordnance maps. Sheet L. SW., contains most of Lunds, but sheets XLIX NE. and SE., and L. NW., are also necessary.

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sites recover their appetite. On the other hand a healthy dog paying a visit runs a risk. There are two equal and opposite dangers ; the one to a clean farm visited by an infected dog, and the other to a clean dog visiting an infected farm.

In addition to the four dogs already mentioned that belonged to the fell-shepherd three others have more recently passed through his hands, all coming from districts where canine " hysteria " was unknown. (1) On November 5th, 1929, a bitch, Meg, not more than a year old, was sent to him from Askrigg for training, and had an attack of running madness on November 16th. (2) On November 13th, he and the son of a Lunds farmer whose farm was already infected, received from Sedbusk dogs, Jim and Floss respectively, less than a year old, brother and sister from the same litter. The fell-shepherd returned Jim to the vendor on December 10th ; the farmer's son still has Floss. Neither contracted " hysteria," although Jim had a few big ticks. (3) About December 2nd, the fell-shepherd received a dog, two or three years old, from Garsdale on trial, but sent it back on December 14th. It has not yet (March) shown any symptom of the disease. Thus the five dogs that were in the fell-shepherd's possession before the second week in November all caught " hysteria," one on the eleventh day after its arrival ; the two dogs he acquired later did not.

Light may be thrown on the period of incubation also by the case of John Brunskill of South Lunds. At the end of October, 1929, he had three dogs :—(1) Beauty (f.), age three years, in his possession two years ; (2) Laddy (m.), age two years, in his possession nine months ; (3) Jock (m.), ten months old, bought on October 26th from a farmer whose farm is not infected. Laddy showed symptoms of " hysteria " on the night of October 30th, and all three dogs were in a sensitive condition during the whole of Thursday, October 31st, having frequent attacks of running and barking, but no falling fits. The symptoms ceased after two days. Jock's attack was mysterious because he never came in contact with the other dogs and was housed in a place where no dogs had lived for two years. It will be noticed that he developed the disease only five days after his arrival.

Jock fell ill again on November 28th. When taken out for work he had less heart than usual, walked on three legs, and appeared to his master to have rheumatism. He refused food from that day, and on December 2nd and 3rd lay in a state of semi-consciousness and would not leave his bed. Towards the end his breathing was short and quick, and excepting that there was no salivation nor foaming at the mouth his condition seems to have been similar to that of Fan of Quarry Farm,

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described in my first report. The illness ended fatally, however, for Jock died during the night of December 3rd and 4th.

About the same time two of the fell-shepherd's dogs had similar but less acute attacks which were attributed to distemper although the patients had not watery eyes and recovered more rapidly than they would have recovered from distemper of which there were then, and are now (March), no cases in the neighbourhood. Jem (f.), who is more than two years old and has been in the fell-shepherd's possession since March, 1929, had had attacks of running madness in July, as already recorded, but none since the last week of August. About December 4th she lost her appetite completely, cowered, shivered, and refused to leave her bed, and was very sick the next day although she had eaten nothing for thirty-six hours. The illness lasted only two days after which the dog regained her appetite and health. The long interval between attacks is noteworthy and may be explained by supposing either that the disease remained latent for more than three months without any manifestations, or that an attack of canine "hysteria" does not confer complete immunity and that Jem, after recovering from her first attack in summer, was re-infected in winter.

Meg who, as has just been stated, developed "hysteria" on November 16th, fell ill on December 6th, while working on Abbotside Common and exhibited symptoms similar to Jem's, recovering in thirty-six hours.

There was a general reluctance to attribute these December illnesses, in which characteristic symptoms were not conspicuous, to "hysteria." The last new cases observed in Lunds were those of John Brunskills' dogs at the end of October, and although a dog at Moorcock Farm, which had already suffered from the disease had an attack on November 24th, it seemed nevertheless that the epidemic was abating with the advent of winter, not for want of susceptible patients, since less than half the dogs in Lunds had had the disease, but more probably because the transmitting agent dies, hibernates, or becomes less active in cold weather. It was therefore both a surprise and a disappointment when, at about 4 p.m. on Sunday, December 29th, 1929, Fan of Place Farm, whose case has been described and whose last previous relapse was on October 27th, had two closely consecutive but mild attacks of running madness and another, rather more severe since she foamed at the mouth, when watering cattle at about the same time on Friday, January 3rd, 1930.

After Fan's attack and until the end of January, 1930, no dogs in Lunds had illnesses that could with certainty be identified as canine "hysteria," but there were two suspicious cases. The fell-shepherd reports that his dog (old) Bell, aged at least eleven years, was for several

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days excited at night, breaking out of the stable where she slept and trying to enter the house. He believes that she had an attack of "hysteria" on the night of January 14-15th; in the morning her head was swelled, possibly owing to an injury received while breaking out, and her eyes "gummed up." He gave her castor oil, and she passed a few worms and some pus. On January 29th a puppy at High Hall was heard to yelp strangely, and at 8 a.m. on January 30th, while playing with another dog, it suddenly ran home and seemed to look for a place in which to hide. Twenty minutes later it had recovered. In February no symptoms were seen at Lunds that were even suspicious, and the epidemic may be assumed to have come to an end with or during January.

It is important to note that Fan lives, with another dog and a horse, in a warm stable where parasites may be unusually active even in mid-winter. On January 1st, 1930, between the attacks, I examined her and removed about a dozen ticks; and on January 4th I caused the end of the stable where the dogs sleep to be thoroughly cleaned. The bedding and the dust swept from the floor, shaken on a white sheet, yielding a number of gorged ticks and more were found under the rough loose stones that served for pavement. That many of the rude buildings in this district, where dogs are housed, swarm with ticks, is notorious. I am told that they can sometimes be seen crawling into cracks in the walls and old nail-holes in the woodwork, even as high as the ceiling. Consequently some farmers give their dogs tubs in which to sleep or boards, and one aged shepherd was accustomed to provide creosoted sleepers raised from the ground and periodically sprinkled with paraffin oil. Unless some such precaution is taken a dog picked clean of ticks will, if billeted in an infested place, bear in a couple of days an aftermath as great as the original crop. When, on his round, the fell-shepherd sits down to rest or talk, his dogs, unbidden, at once approach him in order that he may improve the time by removing ticks from their backs.

Ticks collected on November 21st, 1929, from the four dogs the fell-shepherd then kept, viz. Bell, (old) Bell, Jem and Floss, were very kindly identified by Professor George H. F. Nuttall, F.R.S., Director of the Molteno Institute for Research in Parasitology at Cambridge. They were all females, one of which had oviposited, belonging to the species *Ixodes canisuga*. Specimens removed from Fan, of Place Farm, on January 1st, 1930, were sent to Mr. William C. Miller, M.R.C.V.S., of the Royal (Dick) Veterinary College, who reported that they were all either fed (but not fully fed) or unfed females of the *Ixodes* class. The absence of larvæ, nymphs and males is remarkable. It is possible that in winter there are no larvæ and nymphs, and that the males of

Ixodes canisuga do not feed ; but more probably they were overlooked, owing to their small size.

Ticks are much the commonest, in fact almost the only external parasites found on Lunds dogs. Creatures described as lice are said to occur sometimes, usually on puppies, but not often ; and in summer, generally on the back or shoulders of the dog and round or near a big tick, there are occasionally clusters of reddish objects the size of pins' heads, not firmly attached but easily rubbed off, which are locally supposed to be the eggs of ticks. Fleas* are never seen and the farmers know nothing of mites : I have searched the ears of several dogs for them without finding any. I must not claim that this proves their absence, for mites are small and a dog's ear cavernous, and I have had no previous experience in mite-hunting ; but if they were common the farmers, who are infinitely more observant than townsfolk, would know about them. No external parasite has been observed to be specially associated with cases of " hysteria," but none, unless microscopic parasites exist, is prevalent enough to act as carrier of the disease except the tick.

It may be worth while to mention the puzzling case of Blade's Farm, in the centre of the affected district, which has had no case of " hysteria," although it is visited often by the fell-shepherd, and although all the neighbouring farms, Yore House, South Lunds, Quarry and Place, by which it is surrounded, have suffered from the disease. On January 6th the dogs there were examined and no ticks found. Little weight can, however, be given to this fact since the absence of ticks may be due to the season, dog-ticks being in winter conspicuously less numerous than in summer.

The Lunds ticks disappeared from the dogs' bodies in the beginning of February, 1930. On January 17th I witnessed the removal of several from the back of the fell-shepherd's (old) Bell who is suspected to have had an attack of " hysteria " two days earlier ; but on February 17th none could be seen either on her or on Jem, the fell-shepherd's other dog. Until recently both Place Farm and Quarry Farm were badly infested, though the former was improved in the beginning of January by putting a cement floor in the dogs' quarters. The dogs at these farms were searched in the middle of February with negative results. It will be noticed that the disappearance of ticks coincided with the disappearance of canine " hysteria."

Veterinary authorities to whom the idea has been suggested that

* There is a trap here for the unwary inquirer. In the Viking dialect of these mountains a flea is a " lop " and " flee " means a fly, as in the daleswoman's elucidation quoted by Richard Blakeborough in his *Wit, Character, Folklore and Customs of the North Riding of Yorkshire*, 1898 : " Ah deean't meean fleas 'at's fleas, bud flees 'at flee."

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canine " hysteria " may be spread by ticks have not considered the theory worth a moment's consideration. Their reason seems to be that they regard ticks as essentially denizens of the fields and believe that dogs acquire them in the open air. In consequence they argue that town-dogs, having no access to tick-infested land, could not contract the malady if it were spread by such means : perhaps they also think that in the country the prevalence of a tick-disease ought to coincide, as the prevalence of louping-ill and redwater fever are said to do, with the periods when crops of adult ticks are ripe. This reasoning is inadmissible in the case of our domesticated ticks. Without excluding the possibility that dogs may occasionally pick these creatures up from the grass, the fact that the longer a dog is confined to his quarters the more infested he becomes, shows that, in Lunds, dogs get them far more often and in far greater numbers from the premises where they sleep. It is admitted that canine " hysteria " is more prevalent in the country than in the town, a very remarkable fact. And it may there be even less prevalent than appears. The disease obtained romantic notoriety last September when all the newspapers described it under the beguiling caption : " Dogs see Ghosts " ; and the town-owners of sick dogs now doubtless prefer to hear the puzzling ailments of their pets diagnosed as fashionable " hysteria " than as vulgar distemper even in its nervous form. It seems not improbable that dogs kennelled in yards or housed in town stables may sometimes be troubled by ticks and that it is precisely these dogs, and not lap-dogs, that get " hysteria." Indeed, Captain A. W. Noel Pillers, F.R.C.V.S., of the Liverpool Corporation's Veterinary Department, informs me that ticks, though rare, do occur in that city, being seen from time to time on dogs in the suburbs and occasionally brought in by country horses.

To my lay mind some confirmation of the theory is found in the resemblance between canine " hysteria " and the sheep-disease louping-ill which is said to be transmitted by ticks ; a resemblance so close that one is tempted to suspect that they are the same malady transferred from the one animal to the other by their common parasite. Louping-ill is thus described by Mr. William C. Miller, in his book *Some Parasites of British Sheep* (Robert Young & Co., Ltd., Glasgow, 1925) :—" The disease attacks sheep suddenly, with few or no well-marked preliminary symptoms. At the outset the nervous system is in a state of extreme excitement and irritability, often causing the affected sheep to leap in the air when startled or suddenly disturbed, and hence the name ' louping ' (i.e. leaping) ' ill.' Very often there are exhibited systems of drowsiness and sleepiness, leading to stupor and even unconsciousness. In other cases either the two hind limbs or the two

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fore limbs become paralysed, and the sheep is unable to move about. In most cases there is twitching and trembling of the muscles of the surface of the body, and very frequently the jaws champ and the lips tremble. Saliva dribbles from the mouth, and the animal does not feed. If the temperature is taken it is found to be high, and the respirations are always rapid. In some other cases little more beyond a general dullness and a tendency to seek solitude and rest are noticed, but if such sheep are caught and their temperatures are taken they will almost invariably be found to be elevated up to as much as 107 or 108° F.

" In the majority of cases the sheep recovers, although the mortality may be as high as 15 to 20 per cent. of the affected in bad areas in bad seasons, but a number of the recovered sheep are left with some deformity, such as a twisted neck (' wry neck '), a lame leg, or a tendency to hold the head very stiffly."

No instance has occurred in Lunds of deformity resulting from an attack of canine " hysteria," and we have no records of temperatures. Otherwise, if mention be added of the characteristic bark and leaping replaced by running, the description of louping-ill might serve as description of the dog-disease.

I have tried in this report to state the grounds on which rests the suspicion that ticks may be carriers of canine " hysteria," a suspicion that seemed strong enough to justify the circulation of the following advice to local farmers.

" Ticks should be exterminated. It taxes the strength of any animal when, besides feeding itself, it must nourish a regiment of parasites. There was a dog in this district from whose body more than three hundred ticks were removed, probably all adult females. Since each adult female tick, before it is gorged and falls off, sucks about half a teaspoonful of her host's blood, that dog, if it had not been picked clean, would have lost a pint. Moreover, ticks are not blood-suckers only—they are worse : they are poisoners convicted of spreading such diseases as louping-ill among sheep and redwater fever among cattle, and there is reason to suspect that it may be they who convey canine " hysteria " from dog to dog.

" It is simple to say that ticks should be exterminated : to exterminate them is difficult. The adult females are large enough to be seen or felt and pulled off ; but the larvæ, nymphs and males, being little bigger than a pin's head, are easily missed and must be destroyed by a dip or salve. And it is vain to clean a dog if, when next he lies down to sleep, a dozen ravenous ticks crawl up from the bedding or floor, and bury their heads in his skin. His dwelling must be cleansed too, and the cleansing must be extraordinarily thorough. The British dog-tick

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can live for fourteen months without a meal, so that one tick overlooked in a crack may emerge a year afterwards bringing disease with it, or may lay ten thousand eggs—and when these are hatched the last state of that place may be worse than the first. Even after the dog and his quarters have been cleared of ticks constant vigilance is needed : a visitor's dog may drop a tick in the bedding, or the dog himself may pick one up in the fields and so start the trouble afresh.

" Living a more sheltered life its history, though similar, may not be identical with that of the sheep-tick. In a warm, damp stable the time necessary for hatching eggs or for moulting may be reduced, mating may occur on the ground, and the seasons when crops of adult ticks are ripe may not be the same as in the fields. But the greatest difference must be the immense reduction of the dangers that attend every stage of a wild tick's life, to compensate for which nature has made the creature so prolific. In a rough-floored building which is seldom swept and disinfected many of the eggs may still be devoured by insects, but the tick, once hatched and after each of its transformations, will not have the slightest difficulty in climbing up the bedding and reaching quickly a sleeping dog.

" It is believed that the following suggestions are likely, if followed, to result in the extermination of dog-ticks in Lunds. They involve trouble and a little expense ; but a good sheep-dog is a valuable animal and deserves care ; while on the other hand a neglected dog, infested with ticks, is a danger to its neighbours.

1. The floor of the place where the dogs live should be made of cement-concrete, free from cracks, and swilled out daily with water and occasionally with a disinfectant. Wooden beds, raised above the floor, should be provided and thoroughly cleansed every few days when the bedding is changed.

2. The floor, walls, and ceiling should be well washed with a strong liquid disinfectant. After this washing, all crevices in the walls should be pointed with cement-mortar and all holes and cracks in the woodwork plugged with putty. The washing with disinfectant should be repeated a couple of months later in case any eggs, not removed by the first washing, have hatched. The place should then be limewashed and kept always white and fresh.

3. Before returning the dogs to the disinfected place a dip, salve, or powder that will kill ticks should be applied to every part of their skin from the point of the nose to the tip of the tail, and all visible ticks pulled off and burned. Thereafter they should be often examined, and, until the danger of reinfection has passed, treated periodically as follows :—

November to March—once a month.
April to October—every three weeks.

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4. A single tick that thrusts its head into a dog's flesh for a single moment may bring infection. Therefore no farmer should allow a visitor's dog to enter the place where he keeps his own dogs; it may drop ticks. Contrariwise a farmer when visiting a friend should never put his dog in his friend's dog-place ; it may pick up ticks.

5. Straw or wood-shavings, removed and burned every three or four days, or even sacks that can be shaken, would be better than rushes or hay for bedding.

" For the disinfection of the premises any reliable liquid disinfectant, for instance ' White Septol ' (made by Messrs. Robert Young & Co., Ltd., of Elliot Street, Glasgow) would be satisfactory, provided it is applied thoroughly and washed into every crevice. ' White Septol ' costs only six shillings a gallon, and before use one part of disinfectant is mixed with 99 parts of water. Even scalding water, if it is really scalding, might suffice, or in very bad cases a painter's blow-lamp.

" For the dogs themselves a carbolic arsenical dip is recommended. After dipping, the coat of the dogs should be brushed against the hair as thoroughly as possible to remove half-poisoned ticks which can then be burned before they have an opportunity to fall off and recover.

" Those who fear that any dip that is strong enough to kill a tick will also be strong enough to injure the dog—and that is the opinion of some Veterinary Surgeons—or dislike to have and handle poisons, may, without hesitation, use some preparation containing Derris root.

" In compiling these suggestions I have received valuable guidance from Lieut.-Colonel H. G. Bowes, F.R.C.V.S., of Leeds University, Mr. William C. Miller, M.R.C.V.S., who is a lecturer in Zootechny at the Royal (Dick) Veterinary College and in Veterinary Hygiene at the Edinburgh and East of Scotland College of Agriculture, and from Mr. A. W. Noel Pillers, F.R.C.V.S., of the Liverpool Corporation Veterinary Department, to all of whom I record my gratitude."

But when all is said and done ticks are only suspected, not found guilty. Further observation may strengthen the suspicion but will scarcely prove the theory, and we have not in Lunds the special skill and knowledge required for the crucial experiments of transferring ticks from sheep with louping-ill (which, since our sheep have no ticks, is unknown here) and dogs with " hysteria " to healthy dogs. Such experiments are not so easy as would be thought. It is difficult to remove ticks from a dog, even with the aid of chloroform, without damage to their mouth-apparatus ; and in winter ticks collected from bedding on which dogs have slept seem all to be gorged adult females, about to lay eggs and die, which will have no desire for another meal. Experiments with *Hæmaphysalis punctata*, carried out in the laboratory

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of the Ministry of Agriculture and Fisheries, show that adults which as nymphs had sucked the blood of animals affected with redwater fever were, if not the only, at all events the most frequent carriers of the infection. Larvæ lately hatched from eggs did not carry it ; and if canine " hysteria " is spread in similar fashion it will be necessary to procure gorged larvæ and nymphs undergoing transformation, and test the resulting unfed nymphs and adults. Moreover, an unlicensed man who encourages a flea to jump from one cat to another on unrecognized premises is liable to pains and penalties under the vivisection laws, and nobody in Lunds has licences and certificates from the Secretary of State. We have, however, done all that is legally permitted and practically possible to help ourselves ; the Ministry of Agriculture and Fisheries should now do something to help us.

A Case of an Abscess in the Rectal Wall of a Cat.

By J. W. H. HOLMES, M.R.C.V.S., D.V.S.M.,
*Royal Veterinary College, London, N.W.*1.

It is unfortunate and disappointing to have to record a failure, but I think the interest of the following case is a sufficient excuse. A short time ago a three year old neutered male cat was brought for examination, with the history of having recently shown pain and difficulty on defecation. The animal appeared in good spirits, showed a glossy coat, and was in fair condition. The temperature was normal. Abdominal palpation revealed the presence in the bowel of a large quantity of fæces, while there was also felt in the abdomen a lump the size of a large walnut. Enemata were given to facilitate the examination, but only two small pieces of fæcal matter were evacuated. A rectal examination was next made, which showed the lumen of the bowel to be almost occluded by pressure from the swelling above noted. The exact position of the abnormality was to the left side and dorsal, just in front of the brim of the pelvis. It was tense and cyst-like in nature.

An exploratory laparotomy revealed the swelling to be in the rectal wall. An assistant held the swelling through the abdominal wound whilst it was punctured per rectum with a trocar and canula, a thick creamy pus being very slowly evacuated. The abscess was finally opened per rectum by means of a narrow bladed knife. In all, about 10 c.c.s of the pus were discharged and this, upon bacteriological examination, yielded a pure growth of staphylococci. The abdominal wound was closed and for four days the progress was satisfactory, the animal eating well and passing fæces normally. On the fifth day a little dullness was noted, while on the sixth day the cat was decidedly ill. Rectal examination revealed the fact that the abscess had again

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filled and was pointing. It was reopened per rectum, and blood-stained pus was discharged. One c.c. of ether was given subcutaneously, brandy was administered *per os*, and a hot water bottle provided. The stimulants were repeated later in the day, but the patient died during the night.

Professor Tom Hare made a *post-mortem* examination and reported death to be due to heart failure, associated with toxæmia arising from the local inflammatory lesion.

Abstracts

The Physiology and Pathology of the Fore Stomachs in Cattle.

By DR. J. WEBSTER,

Professor in the Utrecht University.

In this excellent little book Dr. Webster gives an interesting survey of his experiments and conclusions on the above subject. He considerthat the making of a large stomach fistula is an ideal method for studying the motor functions of the fore stomachs. They contract rhythmics ally ; the rhythm of the contractions of the reticulum is hard to disturb, it resists a refractory pause. The stomach contractions in cattle may be brought to a standstill by pressure on the bridge of the psalterium. The motor function of the stomach is governed by the law of peristalsis, i.e. slackening and widening precede a contraction. Besides, the stomach movements are subject to the principle of alternating peristalsis and antipiristalsis.

The contractions of the stomachs take their origin from the œsophagal gutter at the upper fold of the reticulum ; from here peristaltic contraction waves are sent out to the reticulum, rumen and psalterium ; these return as antiperistaltic waves to their place of origin.

The upward movement arises either from stomach contraction or abdominal pressure. Rumination arises from continued contraction waves which originate in the œsophagal canal and pass up the œsophagus. For the performance of rumination a powerful contraction of the œsophagus in the direction of its long fibres is the chief cause. A relaxation of the cardia at the same time forms an empty air-space and as a result the food is sucked out from the stomach. The funnel shape thus formed facilitates the entrance of food into the œsophagus.

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The lowering of intra-thoracic pressure is of non-essential significance in ruminants. Eructations arise as a result of an antiperistaltic contraction wave getting past the cardia. To accommodate this the cardia opens regularly in cattle once in a contraction period, as a result of the crossing over of the cardia by the antiperistaltic wave of the rumen. Contractions of the diaphragm in ruminants are not absolutely necessary : on severance of all the phrenic roots rumination is still possible. The reticulum contraction, normally in ruminants always a preceding rejection, is not absolutely necessary for the carrying out of the act of rumination : if after atropin injection the reticulum can no longer contract, rumination, however, is still possible.

The food and fluid taken up by very young animals always goes first into the reticulum and rumen. Also in ruminants neither fluids nor firm masses of food go direct into the psalterium or true stomach. In sucking calves the fluid taken goes direct into the abomasum as a result of closure of the œsophagal canal or gutter, in dependence on a reflex action brought about by the passing of the fluid into the upper portion of the œsophagus.

The overflow of water and pulpy food from the reticulum into the psalterium and true stomach results from a suction act. This suction results from a rhythmic and sudden relaxation of the psalterium from a previous condition of contraction. The pressure effect from contractions of the œsophagal canal brings about firm food.

International Veterinary Congress.

The following itinerary has been announced for our American colleagues in connection with the Tenth International Veterinary Congress, to be held in London, England, August 4-9, 1930 :

June 14	New York	Sail on one of the palatial cabin steamers.
June 21-27	Paris	Visit to the famous Veterinary School at Alfort. Visit of the Pasteur Institute and laboratories. Abattoirs and stockyards of La Villete. Sightseeing in Paris and environment, including motor trips to Versailles, Fontainebleau.
June 28	Marseilles	via Avignon.
June 29-30	Nice, Monaco and Monte Carlo	Wonderful " Corniche Drive." Famous casino.
July 1-2	Milan	Veterinary College and city abattoirs, including visit to the beautiful Cathedral of Milan.

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July 3-4	Venice	St. Mark's Cathedral and sight-seeing through the canals in gondolas.
July 5	Bern	Serum Institute and Veterinary College. Sight-seeing.
July 6-7	Interlaken	Two days in the beautiful valley of the Jungfrau, Scheidegg and Grindelwald.
July 8-9	Lucerne, Rigi	The finest Swiss scenery.
July 10	Zurich	Veterinary College, Etc.
July 11-12	Munich	Veterinary College. Sight-seeing. Centre of Art and Music.
July 13-15	Vienna	Veterinary College, Hygienic Institute. Sight-seeing. (A second Paris.)
July 16-17	Budapest	Veterinary College, city market. Sight-seeing.
July 18	To Dresden	A day crossing Austria and Czechoslovakia.
July 19-20	Dresden	Visit of the art galleries and city sights.
July 21	Leipsic	Most modern Veterinary School, abattoirs and stockyards in the world.
July 22-24	Berlin	Veterinary College, city sights, abattoirs and stockyards. Imperial Board of Health Laboratories. Visit to Potsdam, via Havel Lakes.
July 25	Hannover	Veterinary College.
July 26	Wiesbaden and Frankfort	A beautiful resort and another interesting city.
July 27	Mainz	Rhine steamer trip. A delightful day.
July 28	Cologne	Castles, Legends, Romances.
July 29-31	Utrecht, The Hague, Amsterdam	Where there will be an opportunity to see how the Dutch keep their land from being overflowed with water, visiting the dikes and locks, and the famous art galleries. Visit of the Island of Marken and Volendam.
Aug. 1-2	Brussels	Veterinary College. Sight-seeing.
Aug. 3	Ostende	Europe's greatest seaside resort.
Aug. 4-9	London	Attending the International Veterinary Congress.
Aug. 10-17	England and Scotland	Delightful trips are being planned for this time in England and Scotland.

(*Journal of the American Veterinary Medical Association.*)

The International Veterinary Congress will be held at the Central Hall, Westminster, London, August 4th to 9th, 1930. The

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Organising Committee is composed of : President, Sir John McFadyean, LL.D., M.B., C.M., B.Sc., M.R.C.V.S. ; Vice-President, Dr. O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S. ; Hon. Treasurer, Lt.-Col. J. W. Brittlebank, C.M.G., M.R.C.V.S., D.V.S.M. ; Hon. Secretary, Professor J. Basil Buxton, M.A., F.R.C.V.S., D.V.H.

The subscription for Members and Delegates is 20 shillings, and communications should be addressed to : General Secretary, F. Bullock, LL.D., F.C.I.S., 10, Red Lion Square, London, W.C.1.

PROGRAMME.

General Meetings.

1. Foot and mouth disease (plurality of viruses ; immunisation, disinfection).
2. Tuberculosis (vaccination).
3. Infectious abortion of cattle, sheep and swine.
4. Relationship of the veterinary surgeon to Animal Husbandry.
5. Veterinary Science in relation to public health, with special reference to production and distribution of meat and milk.
6. The law governing the practice of Veterinary Medicine and Surgery.

Sectional Meetings.

Section I. Pathology, Bacteriology and Epizootiology.

(*a*) Variola in domestic animals.
(*b*) Anthrax. (Control of dissemination by animal products.)
(*c*) Swine fever. (Diagnosis and vaccination.)
(*d*) Rabies. (Vaccination.)
(*e*) Distemper. (Ætiology and vaccination.)
(*f*) Blackleg. (Vaccination.)
(*g*) Standardisation of biological products (sera, vaccines and diagnostic agents.)

Section II. Veterinary Medicine, Surgery and Obstetrics.

(*a*) The use of drugs in the treatment of diseases caused by Nematode and Trematode worms.
(*b*) Milk fever.
(*c*) Bovine sterility (prophylaxis and treatment).
(*d*) Acute infectious mastitis.
(*e*) Diseases of the new-born.

Section III. Tropical Diseases.

(*a*) Theileriases.
(*b*) Control of trypanosomiases.
(*c*) Rinderpest (prophylaxis).

Section IV. Poultry Diseases.

(*a*) Fowlpox and coryza.
(*b*) Fowl typhoid and bacillary white diarrhœa.

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(*c*) Fowl plague (vaccination).
(*d*) Treatment of parasitic diseases.

Section V. Zootechny and Dietetics.

(*a*) Genetics (principles of breeding).
(*b*) Deficiency diseases.
(*c*) Scientific feeding of animals.

News

The Royal Veterinary College Government Response

It will be remembered that the Parliamentary Committee appointed in 1928 issued a very strongly worded Report to the effect that the minimum amount required to re-build, equip and endow the Royal Veterinary College was £300,000, with £25,000 for an annexe in the country and £21,000 a year as maintenance allowance.

The response, after prolonged waiting, is the offer of a Government grant not exceeding £100,000 on a pound for pound basis, for the reconstruction of the College on the same site.

Review

Lehrbuch der Arzneimittellehre fur Tierärzte (Materia Medica for Veterinary Surgeons). Thirteenth Edition. By Eugen Fröhner, M.D., D.V.M. Berlin Veterinary School: Stuttgart: Ferdinand Enke. 1929. Pp. 472. Price R.M. 26, bound R.M. 29.

The fact that this book has reached its thirteenth edition is evidence enough that it is greatly appreciated and valued. The new edition has been brought right up to date. Digitalis leaves have been tested pharmacologically and biologically and standard preparations and doses worked out. Curative sera have been officially tested and standardised. The fight against fluke has been eased by the introduction of such remedies as distol, carbon disulphide, hexachlorethane, and tetrachlorethylen. Of the salvarsan preparations, 6 are mentioned, neosalvarsan being the most useful for the veterinarian. The chapter on antiseptics deals with medicinal charcoal, sulphur dioxide, naganol, rivanol and chloranime. Of the five, officinal tar preparations liquor carbonic detergens is noteworthy. In a forensic connection the use of atropine in broken wind of horses is interesting. Arecoline in canine practice is a valuable remedy against tape worm when given orally. Synthetic camphor is now made by the druggist and can be substituted for the natural camphor. Mallein has not yet been standardised and controlled as is the case with tuberculin. The uses of calcium chloride do not seem to be mentioned in the book, but mastisol,

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a solution of mastix in benzol and chloroform as a dressing for wounds and the fixing of bandages, is referred to, and might be usefully introduced into our therapeutic text books here. The text book is excellently bound and printed.

Personal

THE profession will learn with regret of the very serious illness of Professor George Wooldridge, of the London College, and his many friends and old students will unite in their sympathy with Mrs. Wooldridge in her great anxiety.

COLONEL ARTHUR OLVER, C.B., C.M.G., has been appointed to the new and high position (which has recently been created) of Adviser in Animal Husbandry to the Government of India. This position is one of the greatest importance and the Government have made a wise selection; as Colonel Olver is well known, not only for his professional abilities, but for his great capabilities as an organiser, and a tactful and just administrator. Many veterinarians, civil as well as military, who had the good fortune to serve with him during the Great War, will know that this high post is in the hands of one who will reflect credit, not only upon himself but upon the profession of which he is such a distinguished member.

PROFESSOR JOHN RUSSELL GREIG, Ph.D., M.R.C.V.S., who has, until recently, occupied the Chair of Materia Medica and Therapeutics in the Royal (Dick) Veterinary College, has been appointed Director of the Animal Diseases Research Institute at Moredon, Edinburgh, in succession to Mr. W. A. Pool, M.R.C.V.S., who is now Deputy Director of the Imperial Bureau of Animal Health at Weybridge. Professor Greig's researches, in collaboration with Professor Dryerre, into the milk fever problems, are well known and it was largely for this that he was awarded the degree of Doctor of Philosophy of Edinburgh University.

COUNCILLOR J. H. TAYLOR, M.R.C.V.S., who won such a notable victory at the recent municipal election at Darlington, is the popular president of the North of England Veterinary Medical Association.

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